

**REMARKS**

Favorable reconsideration and allowance of the subject application are respectfully requested in view of the following remarks.

**Summary of the Office Action**

Claims 1-20 stand rejected under 35 U.S.C §112, first paragraph, as failing to comply with the written description requirement.

Claims 1-16, 19 and 20 stand rejected under 35 U.S.C §103(a) as being unpatentable over U.S. Patent No. 4,775,891 to Aoki et al. (hereinafter "Aoki") in view of U.S. Patent No. 6,552,705 to Hirota (hereinafter "Hirota") and WO 99/05567 (hereinafter "Johnson").

Claims 17 and 18 are objected to as being dependent upon a rejected base claim, but would be allowable if rewritten in independent form.

**Summary of the Response to the Office Action**

A Revocation and Power of Attorney Appointment of New Agent, Change of Correspondence Address and Attorney Docket Number is submitted concurrently. Applicant amends claims 1, 2, 6-9, 13-16 and 18-20 by this amendment. No new matter has been introduced. Accordingly, claims 1-20 are pending.

**The Disposition of the Claims**

Applicant appreciates the Examiner's indication that claims 17 and 18 would be allowable if rewritten in independent form.

In addition, claims 1-16, 19 and 20 also are believed to be allowable for at least the following reasons.

**Claim Rejection Under 35 U.S.C. §112, First Paragraph**

Claims 1-20 stand rejected under 35 U.S.C §112, first paragraph, as failing to comply with the written description requirement. In particular, the Office Action asserts, at paragraph 2, lines 5-7, that “[t]he specification, as originally filed, does not provide support for ‘delaying source data while modulating source data’ as is claimed in the independent claims 1, 8 and 19.”

Applicant has amended independent claims 1, 8 and 19. Support for the subject matter set forth in independent claims 1, 8 and 19 can be found, for example, in paragraphs [0046]-[0052]. Therefore, Applicant respectfully submits that claims 1-20, as amended, fully comply with the requirements of 35 U.S.C. § 112, first paragraph. Accordingly, withdrawal of the rejection of claims 1-20 under 35 U.S.C. § 112, first paragraph, is respectfully requested.

**All Claims Comply with 35 U.S.C. §103(a)**

Claims 1-16, 19 and 20 stand rejected under 35 U.S.C §103(a) as being unpatentable over Aoki in view of Hirota and Johnson. To the extent that the Examiner may consider this rejection to still apply to these claims, this rejection is respectfully traversed for at least the following reasons.

Applicant respectfully submits that the applied references, whether taken separately or in combination, fail to teach or suggest each and every feature of claims 1-16, 19 and 20. For example, none of Aoki, Hirota and Johnson teaches or suggests the claimed combination as set forth in independent claim 1, as newly amended, including at least “modulating a first set of source data and supplying the modulated source data to a display panel at an initial period of one

frame interval,” and “applying a black voltage as black data to the display panel for at least a portion of the rest period of the frame interval.”

In addition, none of Aoki, Hirota and Johnson teaches or suggests the claimed combination as set forth in independent claim 8, as newly amended, including at least “a modulator modulating a first set of source data and supplying the modulated source data to a display panel at an initial period of one frame interval,” and “a black voltage generator generating a black voltage as black data to apply to the display panel for at least a portion of the rest period of the one frame interval.”

Further, none of Aoki, Hirota and Johnson teaches or suggests the claimed combination as set forth in independent claim 19, as newly amended, including at least “a data modulator modulating a first set of source data and supplying the modulated source data to the liquid crystal display at an initial period of one frame interval,” and “a black voltage generator generating a black voltage as black data allowing a black picture on the display panel at least for a portion of the rest period of the one frame interval.”

The Office Action asserts, at page 3, lines 12-15, that Aoki discloses “modulating source data (e.g. D1-D3) using registered data previously provided and supplying the modulated data to a liquid crystal panel in a first field and applying data (Q1-Q3) different from the modulated data to the liquid crystal panel in a second field.” First, Applicant is unable to find references Q1, Q2 or Q3 in the disclosure of Aoki. Thus, if the Examiner maintains this rejection, Applicant respectfully requests that evidence be provided in accordance with M.P.E.P. §2144.03.

The Office Action also asserts, at page 3, lines 15-16, that “Aoki discloses that the output level of the data control circuit 4 is switched for every field according to the frame signal.”

Further, from the assertions made at page 3, lines 15-23, the Office Action appears to interpret Aoki’s upper three bits ( $O_1$  to  $O_4$ ) being applied as data ( $D_1$  to  $D_3$ , hereinafter “Aoki’s first data  $D_1$  to  $D_3$ ”) from the data control circuit (4) according to the frame signal ( $\phi_f$ ) correspond to “the data without modulation...applied...in the first field of one frame” mentioned at page 3, lines 23-24 of the Office Action. In addition, the Office Action appears to interpret Aoki’s data, which resulted from “1” being added to the upper three bits ( $O_1$  to  $O_4$ ), being applied as data ( $D_1$  and  $D_3$ , hereinafter “Aoki’s second data  $D_1'$  to  $D_3'$ ”) from the data control circuit (4) according to the frame signal ( $\phi_f$ ) correspond to “the data with modulation...applied ...in [a] second field of one frame” mentioned at page 3, lines 24-25.

However, Aoki specifically teaches, at column 9, lines 2-3, that the frame signal ( $\phi_f$ ) is inverted for every television field. As shown in FIGs. 7 and 15 of Aoki, the frame signal ( $\phi_f$ ), in fact, remains at an “0” level for video data  $d_1'$  to  $d_4$ , and switches to an “1” level for video data  $d_1'$  to  $d_4'$ . As explained by Aoki at column 1, lines 13-14, “one vertical scanning period or one field has 262.5 horizontal scanning lines.” Thus, Aoki also refers “one field” as “one vertical scanning period.”

In addition, Aoki teaches, for example at column 6, lines 31- 42, that:

when the frame signal  $\phi_f$  is at “0” level, the upper three bits of the input data  $O_1$  to  $O_4$  are fed as data  $D_1$  to  $D_3$  ...for the display for one field. In the next field, the frame signal  $\phi_f$  is at “1” level...if the least significant bit  $O$  of the output data  $O_1$  to  $O_4$ ...is “0”, the upper three bits are provided as data  $D_1$  to  $D_3$  from the data control circuit 4. If the least significant bit  $O_4$  is “1”, “1” is added to the upper three bits, and the resultant data is provided as data  $D_1$  to  $D_3$ .”

Thus, Aoki discloses that the upper three bits of the input data ( $O_1$  to  $O_4$ ) either could be applied as-is or with “1” added thereto as data ( $D_1$  to  $D_3$ ) from the data control circuit (4) during an entire field at every other field interval. Hence, even assuming, *strictly arguendo*, that one skilled in the relevant art would interpret Aoki’s teaching of adding “1” to a three-bit data as modulating source data, Aoki teaches selectively modulating data of an entire vertical scanning period at every other vertical scanning interval. Therefore, it is respectfully submitted that Aoki does not support the Office Action’s assertion of disclosing the features of applying non-modulated data as a first field of one frame and applying modulated data as a second field of one frame, since different sets of Aoki’s video data ( $d_1$  to  $d_4$  and  $d_1'$  to  $d_4'$ ) are applied during each field/vertical scanning period.

Further, it is respectfully submitted that Aoki fails to teach or suggest the features of supplying the modulated source data to a display panel at an initial period of one frame interval and applying black data to the display panel for at least a portion of the rest period of the frame interval, as set forth in Applicant’s claimed combinations. In fact, the Office Action acknowledges, at page 4, lines 15-16, that Aoki fails to disclose applying a black voltage. Thus, the Office Action cites Hirota as allegedly remedying the deficiencies of Aoki in this regard. In particular, the Office Action asserts, at page 4, lines 19-20, that “Hirota...discloses the modulated signal (A) being applied first, and the video signal being applied between the modulated signal and the black signal (col. 10, lines 46-61).”

However, in contrast to Applicant’s claimed combination, as a whole, Hirota discloses inserting “compensation data A just before the video data for the start of the horizontal scan

period,” and inserting “compensation data B just after the video data for the end of the horizontal period...[inserting] the black video data after the compensation data B.” Column 10, lines 52-53 and lines 56-59 of Hirota.

Furthermore, as illustrated by, FIG. 10 of Hirota, within a horizontal scan period, the video data is applied before the compensation data (B), the black video data (BLACK) and the compensation data (A). Hence, even assuming, *strictly arguendo*, that one skilled in the relevant art would interpret inserting compensation data (A and B), as taught by Hirota, as modulating source data, Hirota teaches applying such data for the end of a horizontal period. Thus, it is respectfully submitted that Hirota also fails to teach or suggest the features of supplying the modulated source data to a display panel at an initial period of one frame interval and applying black data to the display panel for at least a portion of the rest period of the frame interval, as set forth in Applicant’s claimed combinations.

Moreover, it is respectfully submitted that Johnson is not relied upon by the Office Action as allegedly teaching supplying modulated source data to a display panel at an initial period of one frame interval and , and that Johnson does not teach or suggest the features of supplying the modulated source data to a display panel at an initial period of one frame interval and applying black data to the display panel for at least a portion of the rest period of the frame interval, as set forth in Applicant’s claimed combinations.

M.P.E.P. §2143.03 instructs that “[t]o establish *prima facie* obviousness of a claimed invention, all the claim limitations must be taught or suggested by the prior art. *In re Royka*, 490 F.2d 981, 180 USPQ 580 (CCPA 1974).” Since, in view of the above, Aoki, Hirota and Johnson,

whether taken separately or in combination, fail to teach or suggest each and every element set forth in independent claims 1, 8 and 19, it is respectfully submitted that Aoki in view of Hirota and Johnson do not render claims 1, 8 and 19 unpatentable.

Further, since claims 2-7, 9-16, 19 and 20 respectively depend from one of claims 1, 8 and 19, it is respectfully submitted that Aoki in view of Hirota and Johnson also do not render claims 2-7, 9-16, 19 and 20 unpatentable. In addition, Applicant respectfully submits that the applied references, whether taken separately or in combination, also fail to teach or suggest the elements set forth in claims 2-7, 9-16, 19 and 20.

For example, it is respectfully submitted that none of Aoki, Hirota and Johnson teaches or suggest the claimed combination as set forth in claim 2 including at least “applying the delayed source data to the display panel in such a manner that the delayed source data are positioned between the modulated source data and the black data within the frame interval.” The Office Action acknowledges, at page 4, lines 15-16, that Aoki fails to disclose applying a black voltage. Thus, the Office Action cites Hirota as allegedly remedying the deficiencies of Aoki in this regard. In particular, the Office Action asserts, at page 4, lines 19-20, that “Hirota...discloses the modulated signal (A) being applied first, and the video signal being applied between the modulated signal and the black signal (col. 10, lines 46-61).”

However, in contrast to Applicant’s claimed combinations, as a whole, Hirota discloses inserting “compensation data A just before the video data for the start of the horizontal scan period,” and inserting “compensation data B just after the video data for the end of the horizontal period...[inserting] the black video data after the compensation data B.” Column 10, lines 52-53

& 56-59 of Hirota. Thus, as illustrated by FIG. 10 of Hirota, within a horizontal scan period, Hirota's video data is applied before the compensation data (B), the black video data (BLACK) and the compensation data (A). Accordingly, similar to Aoki, Hirota also fails to teach or suggest delayed source data positioned between modulated source data and black data within a frame interval, as set forth in Applicant's claimed combinations.

It is further respectfully submitted that Johnson is not relied upon by the Office Action as allegedly teaching delayed source data positioned between modulated data and black data within a frame, and that Johnson does not teach or suggest the feature of delayed source data positioned between modulated source data and black data within a frame interval, as set forth in Applicant's claimed combinations.

Accordingly, withdrawal of the rejections of claims 1-16, 19 and 20 under 35 U.S.C §103(a) is respectfully requested.

### **Conclusion**

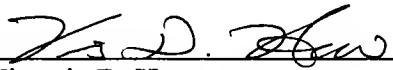
In view of the foregoing, withdrawal of the rejections and allowance of the pending claims are earnestly solicited. Should there remain any questions or comments regarding this response or the application in general, the Examiner is urged to contact the undersigned at the number listed below.

If there are any other fees due in connection with the filing of this response, please charge the fees to our Deposit Account No. 08-1641.

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If a fee is required for an extension of time under 37 C.F.R. § 1.136 not accounted for above, such extension is requested and the fee should also be charged to our Deposit Account.

Respectfully submitted,  
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